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WSES-AAST guidelines: management of inflammatory bowel disease in the emergency setting

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Abstract

Background: Despite the current therapeutic options for the treatment of inflammatory bowel disease, surgery is still frequently required in the emergency setting, although the number of cases performed seems to have decreased in recent years.
The World Society of Emergency Surgery decided to debate in a consensus conference of experts, the main pertinent issues around the management of inflammatory bowel disease in the emergent situation, with the need to provide focused guidelines for acute care and emergency surgeons.

Method: A group of experienced surgeons and gastroenterologists were nominated to develop the topics assigned and answer the questions addressed by the Steering Committee of the project. Each expert followed a precise analysis and grading of the studies selected for review. Statements and recommendations were discussed and voted at the Consensus Conference of the 6th World Society of Emergency Surgery held in Nijmegen (The Netherlands) in June 2019.

Conclusions: Complicated inflammatory bowel disease requires a multidisciplinary approach because of the complexity of this patient group and disease spectrum in the emergency setting, with the aim of obtaining safe surgery with good functional outcomes and a decreasing stoma rate where appropriate.

Keywords: Inflammatory bowel disease, Crohn's disease, Ulcerative colitis, Emergency surgery, Perianal sepsis, Toxic megacolon, Peritonitis, Perforation, Percutaneous drainage, Abscess, SILS, Laparoscopy, Damage control surgery, Open abdomen

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Background

Inflammatory bowel disease (IBD) encompasses a group of chronic inflammatory disorders comprising most commonly of ulcerative colitis (UC) and Crohn's disease (CD). The incidence of IBD appears to be rising in recent decades. Ng et al. [1] reported that the highest prevalence values were in Europe (UC 505 per 100 000 in Norway; CD 322 per 100 000 in Germany) and North America (UC 286 per 100 000 in the USA; CD 319 per 100 000 in Canada). The prevalence of IBD exceeded 0.3% in North America, Oceania, and many countries in Europe. Overall, the majority of studies on CD and UC report stable or decreasing incidence of IBD in North America and Europe. Since 1990, the incidence has been rising in newly industrialized countries in Africa, Asia, and South America, including Brazil [1]. The overall incidence of UC in Europe, North America, and Oceania is independent of gender. In CD, less consistent findings have been reported, with some cohorts suggesting a female predominance in the incidence of CD and others failing to find any gender difference. Differences in gender-specific incidence exist, with a female predominance in CD in western populations and a male predominance in eastern studies. No gender differences were found in UC [2].

IBD typically manifests in the 2nd or 3rd decade of life. Although their pathogenesis is still unclear, it is hypothesized that chronic intestinal inflammation originates from an overly aggressive mucosal immune response against luminal bacteria in genetically susceptible subjects.

CD is characterized by transmural inflammation that can occur in the entire gastrointestinal (GI) tract and common localizations include the terminal ileum and colon. Due to the transmural inflammation, complications may present such as abscesses and fistulas.

In contrast, UC demonstrates mucosal inflammation and typically starts distally in the rectum, showing progression towards the more proximal colon. The disease will mostly be limited to the colon and ileal involvement is rare (backwash ileitis).

Diagnosis of IBD is generally made by assessment of symptoms, biochemical markers, and colonoscopy combined with radiology and histology. The different phenotypes of IBD share common clinical features but may have a heterogeneous presentation which includes abdominal pain, vomiting, diarrhea, rectal bleeding, weight loss, and anemia. Extra-intestinal manifestations such as arthritis, skin disorders, and uveitis may also be present.

IBD is chronic and potentially disabling, frequently leading to hospitalizations, lower quality of life and inability to work, with a substantial socio-economic impact [3].

IBD management aims to achieve induction of remission, followed by maintenance therapy to prevent recurrent disease flares.

IBD therapy is tailored and the choice of the treatment regimen depends on several factors including the type, distribution, and disease severity, as well as co-morbidity and patient preferences. Generally, depending on the level of severity, most patients with CD and to a lesser extent those with UC will require immunosuppression to control intestinal inflammation. Conventional immunosuppressive therapies include azathioprine, 6-mercaptopurine, methotrexate, and 6-thioguanine. These therapies may be necessary for many years, particularly given the incurable nature of CD.

In case of insufficient response to immunosuppressive treatment, or in case of intolerance, biologics are the next line of therapy in a step-up approach. Different mechanisms are currently available. Anti-TNF such as infliximab, adalimumab, and golimumab are available and usually the first biologic that is prescribed due to the lower costs since the introduction of biosimilars and good effectiveness/safety profile. Next line biologicals include vedolizumab (anti-integrin), preventing leukocyte homing to the gut, and ustekinumab for CD blocking the interleukin 12/23 pathway. Recently, tofacitinib was approved for the treatment of UC, which is a JAK inhibitor and belongs to the group of small molecules.

Despite the current therapeutic arsenal for the treatment of IBD, surgery is still frequently required although the number of cases performed seems to have decreased in recent years. It is reported that the risk of first CD surgery after 10 years of disease decreased from 44 to 21% in the last 2 decades in the UK [4], with the risk of a second resection decreasing from 40 to 17%. This is likely due to the introduction of anti-TNF therapy, as well as improved multidisciplinary IBD management aiding this development.

Similarly, colectomy rates in UC decreased in a prospective Swiss cohort and the 5-, 10-, 15-, and 20-year cumulative colectomy rates after diagnosis were 4.1%, 6.4%, 10.4%, and 14.4%, respectively [5]. Interestingly, the vast majority of colectomies took place within the first 10 years since diagnosis.

The improved outcomes for patients with CD are further reflected in recent studies. For example, the population-based cohort of South-Limburg (The Netherlands) showed that hospitalization rate reduced from 65.9% to 44.2% and the surgery rate from 42.9 to 17.4% at 5 years, respectively (both $P<0.01$) [6]. However, patients with CD still show progression towards a complicated phenotype. This is characterized by the formation of stenosis (stricturing phenotype) or abscess/fistula (penetrating phenotype). In contrast, patients who do not progress over time towards these phenotypes are considered "inflammatory phenotype." The latter study showed that the rate of progression towards penetrating or stricturing phenotype was around 21% in the 1990s

and this rate did not change until 2011 when 2 different time cohorts were analyzed. In contrast, the rate of immunosuppression increased from 30 to 70%, and biologic use from 3 to 41%.

Thus, despite improved IBD management and decreasing surgical rates, patients with complicated IBD continue to present with acute complications requiring admission for emergency care. This is in part explained by the progression towards a complicated phenotype (structuring or penetrating phenotype). Secondly, patients have more therapeutic options and continue to be treated with available biologics. When failure of biologic therapy occurs, patients are usually more refractory and prone to requiring hospitalization and surgery. Toxic colitis with or without megacolon, massive hemorrhage, free perforation, an acute abscess (either intra-abdominal or perianal) with sepsis, and intestinal obstruction are examples of acute surgical emergencies [7].

CD can present with acute complications requiring emergency surgery in approximately 6–16% of cases [8]. In acute severe UC, intravenous corticosteroids remain the cornerstone of medical therapy but about 30% of patients do not respond to corticosteroids. After failing 3–5 days of corticosteroids, patients should be considered for second line medical therapy in the form of cyclosporine or anti-TNF therapy, as well as consideration and counselling for colectomy.

Complicated IBD requires a multidisciplinary approach because of the complexity of this group of patients. The management of IBD is very well established in the elective setting but is still unclear in the urgent/emergency setting with a lot of grey areas and a highly variable quality of management in the lack of established consensus and guidelines that could lead to poor overall and functional outcomes.

The World Society of Emergency Surgery (WSES) decided to debate in a consensus conference of experts in the fields, the main issues pertinent to the management of IBD in the emergent situation, with the need to provide a focused guide for acute care and emergency surgeons.

Materials and methods

During the 2018 WSES congress, the Scientific Board of the WSES expressed the necessity to address the lack of guidelines about the management of IBD in the emergency setting, to improve outcomes, decreasing morbidity, and mortality correlated to the emergency treatment of these chronic and complex diseases.

Table 1 Summary of topics and PICO questions

Topic	Question	Combination of words
Initial assessment and Diagnosis	Q.1: In patients with suspected complicated IBD, which are the appropriate biochemical investigations that should be performed?	“Crohn”, “Ulcerative colitis”, “abdominal pain”, “emergency”, “biochemical”, “laboratory”, “markers”, “investigation”; “test”; “metabolic panel”
Initial assessment and Diagnosis	Q.2: In patients with a suspected complicated IBD, which are the appropriate imaging studies that should be performed in the emergency setting?	“Crohn”; “Ulcerative colitis”; “emergency”; “radiology”; “computed tomography”; magnetic resonance”; ultrasonography”; “peritonitis”; abscess”; “occlusion”
Non operative management and preoperative assessment	Q.3: Which is the role of interventional radiology in the management of intra-abdominal abscesses related to Crohn’s disease in the emergency setting?	“Crohn”; “abscess”; “stricture”; “drainage”; “antibiotics”; “surgery”; “emergency”; “ulcerative colitis”
Preoperative management	Q.4: In patients presenting with complications related to IBD, what is the appropriate medical treatment and nutritional support? -The role of medical treatment and management of specific IBD drugs -The role of nutritional support	“Crohn”; "Ulcerative Colitis"; Nutritional support”; “immunosuppression”; “steroids”; “biologics”; “medical treatment” antibiotics”; “emergency”; “preoperative”; “postoperative”; “surgery”
Non-operative vs Operative management Clinical setting: -Acute severe ulcerative colitis; -Toxic megacolon; -Uncontrolled bleeding; -Free perforation; -Intestinal obstruction	Q.5: What are the indications for emergency surgery in patients presenting with complications related to IBD?	“Crohn”; "ulcerative colitis”; “toxic megacolon”; “upper gastrointestinal bleeding”;”peritonitis”; “perforation”; “occlusion”; “obstruction”,”emergency”; “surgery”; “indications”;”radiolology”;”angio-embolisation”; “computed tomography”;”angiography”, "lower gastrointestinal bleeding", "non operative management"
Surgical management	Q.6: Which surgical approach is recommended for complicated IBD in the emergency setting?	“Acute severe ulcerative colitis”; “intestinal bleeding”; ”hemorrage”;“Crohn”; “anastomosis”; “laparoscopy”; “open”; “non operative management”; peritonitis”; “occlusion”; “perforation”; “toxic megacolon”; minimally invasive tecnique”; “emergency”;”damage control”;”open abdomen”
Surgical management	Q.7: How to manage perianal sepsis in the emergency setting?	“perianal”; “abscess”; “fistula”; “sepsis”;”antimicrobial”; “medical treatment”; “surgery”;”emergency”, "Crohn"

A group of experienced surgeons and gastroenterologists were nominated to develop the topics assigned and answer the questions addressed by the Steering Committee (SC) of the project. The main topics debated are summarised in the Table 1. The scientific coordinator of the WSES IBD Guidelines supervised each step of literature searching, study selection, and the final presentation of evidence.

Each expert followed the PRISMA methodology [9] in the selection of papers to consider for review, and articles selected were included in the final analysis. Pediatric patients were excluded. The study group developed a focused draft and a variable number of statements. Each statement was evaluated according to the Grading of Recommendations, Assessment, Development and Evaluation (GRADE) [10].

The provisional statements and the supporting literature were reviewed and discussed with the WSES scientific coordinator by email and modified if necessary. The final data and contributions were presented at the 2019 WSES Congress at Nijmegen.

The WSES scientific coordinator of the project revised the statements, wrote the recommendations based on Consensus conference comments/suggestions, and wrote the final draft. It was submitted to all authors for evaluation and approval. All the comments and pertinent suggestions were considered in the final manuscript. Complicated IBD is defined as summarized in Table 2. Statements and recommendations are summarized in Table 3.

Clinicians and surgeons should be aware that these guidelines should be considered as an adjunctive tool for decision and management but they do not substitute for the clinical judgment for individual patients.

Results

Q.1: In patients with suspected complicated IBD, which are the appropriate biochemical investigations that should be performed?

Statement 1.1

In clinical practice, the diagnosis of CD and UC is based on a set of modalities including clinical, biochemical, endoscopic, radiological, and histological diagnostics rather than a single reference standard (QoE low C).

Table 2 Emergency complications in inflammatory bowel disease

Main acute complications Ulcerative Colitis	Main acute complications Crohn's Disease
Acute severe colitis	Acute severe colitis
Toxic megacolon	Toxic megacolon
Uncontrolled bleeding	Uncontrolled bleeding
Colonic perforation	Free perforation
	Abscess/fistula
	Intestinal obstruction

Statement 1.2

In assessing an acute abdomen in patients with IBD, laboratory tests including full blood count, electrolytes, liver enzymes, inflammatory biomarkers such as erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP), and serum albumin and pre-albumin (to assess nutritional status and degree of inflammation) are mandatory (QoE moderate B).

Statement 1.3

In case of a suspected IBD flare, infectious causes should be ruled out, especially Clostridium difficile and Cytomegalovirus (QoE low C).

Recommendation

We recommend assessing Crohn's disease or ulcerative colitis disease activity in the urgent clinical situation by performing the following laboratory tests: a full blood count, including hemoglobin, leukocyte count, and platelet count; serum C-reactive protein level, erythrocyte sedimentation rate; serum electrolytes; liver enzymes level; serum albumin; renal function; and fecal calprotectin level, when it is possible. It is mandatory to exclude any infectious diseases by performing blood-, stool cultures, and toxin test for Clostridium difficile (strong recommendation based on a moderate level of evidence 1B).

Summary of evidence and discussion

In assessing a patient with acute abdominal pain in the emergency room, the main laboratory tests requested are full blood count (20.1%), electrolytes (19.1%), cardiac enzymes (19.0%), and liver function tests (11.5%) [11].

In differentiating the cause underlying acute abdominal pain, the diagnostic accuracy values of C-reactive protein (CRP) and white blood cell count (WBC) can be elevated [12].

IBD disease activity will usually impact laboratory tests results with anemia, leukocytosis, thrombocytosis, elevated liver enzymes, hypoalbuminemia, and increased inflammatory markers. In addition, therapies may cause abnormalities in liver enzymes, leukocytes, and kidney function. Consequently, for patients with IBD admitted to the emergency room for evaluation, laboratory tests should always include full blood count with differential, comprehensive metabolic panel, liver enzymes, and lipase.

CRP and fecal calprotectin (FC) are the most widely used biomarkers for IBD evaluation. CRP is the inflammatory marker of choice as it is more sensitive than erythrocyte sedimentation rate (ESR) for the evaluation of acute abdominal pain in patients with IBD, and correlates better with endoscopic disease activity in CD rather than in UC [13, 14]. It should be noted that a normal

Table 3 Summary of statements and recommendations

Initial assessment and diagnosis

Q.1:
In patients with suspected complicated IBD, which are the appropriate biochemical investigations that should be performed?

Statement 1.1
In clinical practice, the diagnosis of Crohn's Disease and Ulcerative Colitis is based on a set of modalities including clinical, biochemical, endoscopic, radiological, and histological diagnostics rather than a single reference standard (QoE low C).
Statement 1.2
In assessing an acute abdomen in patients with IBD, laboratory tests including full blood count, electrolytes, liver enzymes, inflammatory biomarkers such as erythrocyte sedimentation rate (ESR) and C Reactive Protein (CRP), serum albumin and pre-albumin (to assess nutritional status and degree of inflammation) are mandatory (QoE moderate B).
Statement 1.3
In case of a suspected IBD flare, infectious causes should be ruled out, especially Clostridium difficile and Cytomegalovirus (QoE low C).

Recommendation 1
We recommend assessing Crohn's disease or Ulcerative colitis disease activity in the urgent clinical situation by performing the following laboratory tests: a full blood count, including haemoglobin, leukocytes count and platelet count; serum C-reactive protein level, erythrocyte sedimentation rate level, serum electrolytes, liver enzymes level, serum albumin, renal function and faecal calprotectin level, when it is possible. It's mandatory to exclude any infectious diseases by performing blood-, stool cultures and toxin test for Clostridium difficile (Strong recommendation based on a moderate level of evidence 1B).

Q.2:
In patients with a suspected complicated IBD, which are the appropriate imaging studies that should be performed in the emergency setting?

Statement 2.1
Cross-sectional imaging (computed tomography, magnetic resonance imaging, ultrasonography) is recommended to detect strictures and extra-luminal IBD complications including fistulae and abscesses (QoE C).
Statement 2.2
Computed tomography and Magnetic resonance imaging are the most sensitive and specific imaging tests for detecting abscesses and stenosis in IBD (QoE B).
Statement 2.3
Contrast enhanced computed tomography is the key study in the emergency setting in assessing IBD extra-luminal complications such as abscesse and fistulae, and a source of bleeding in the case of gastro-intestinal haemorrhage (QoE B).
Statement 2.4
The diagnostic accuracy of magnetic resonance enterography for assessing disease activity and complications related to IBD (including strictures) is similar to CT scan with a decreased ionising radiation exposure (QoE C)
Statement 2.5
Point of Care ultrasonography can have a role in showing free fluid, abscesses or intestinal distention in the emergency department, particularly when CT scan is not available (QoE C)
Statement 2.6
Sigmoidoscopy allows intra-luminal assessment of distal IBD disease activity, bleeding source identification and biopsies in an acute setting, when it is available (QoE C).
Statement 2.7
In stable patients presenting with signs of gastrointestinal haemorrhage, computed tomography angiography should be considered to localise the bleeding site before angio-embolisation or surgery, especially when endoscopic assessment is not available (QoE C)

Recommendations 2
We recommend investigating the acute abdomen in IBD patients with IV contrast-enhanced computed tomography scan in the emergency setting, to exclude the presence of intestinal perforation, stenosis, bleeding and abscesses and to help guide decision making for immediate surgery or initial conservative management (Strong recommendation based on low level evidence 1C).
We suggest performing a point of care ultrasonography (if skills are available) when computed tomography scan is not available, in order to assess the presence of free intra-abdominal fluid, intestinal distension or abscess. The magnetic resonance enterography, (if available) is the preferred technique to diagnose strictures, to differentiate fibrotic from inflammatory components and disease activity (Weak recommendation based on low level evidence 2C).
In stable patients presenting with signs of gastrointestinal bleeding, we recommend performing a computed tomography angiography to localise the bleeding site before angio-embolisation or surgery (Weak recommendation based on low level evidence 2C).
If computed tomography and ultrasonography are unavailable, we suggest referring stable patients to a hospital where 24/7 emergency imaging is available (Weak recommendation based on very low level evidence 2D)

Preoperative management and non operative management

Q.3:
Which is the role of interventional radiology in the management of intra-abdominal abscesses related to Crohn's disease in the emergency setting?

Statement 3.1
Percutaneous drainage associated with antimicrobial treatment should be considered as first line treatment in the management of abscesses related to Crohn's disease, in stable patients (QoE C).
Statement 3.2
Small abscesses (< 3 cm) could be treated with intravenous antibiotics with a risk of recurrence, especially if associated with enteric fistula (QoE B)

Table 3 Summary of statements and recommendations (Continued)

Statement 3.3
Percutaneous drainage of abscesses > 3 cm could avoid immediate surgery and should be used as a bridging procedure before elective surgery to reduce the need for stoma creation and limit intestinal resection in malnourished and high risk patients (QoE C).
Statement 3.4
Surgery should be considered in the case of failure of percutaneous drainage and in patients with signs of septic shock (QoE C).
Statement 3.5
Surgery should be considered for patients with enteric fistulae and if clinical evidence of sepsis persists despite the initial treatment plan (QoE C).

Recommendations 3
We recommend performing radiological percutaneous drainage of intra-abdominal abscesses > 3 cm related to Crohn's disease associated with early empiric administration of antibiotics, to adapt these as soon as possible to microbiological cultures results. The antimicrobial therapy should be re-evaluated according to patient's clinical and biochemical features (Strong recommendation based on a low level evidence 1C).
We recommend administering an early empiric antimicrobial therapy in stable patients presenting with abscess < 3 cm, with close clinical and biochemical monitoring (Strong recommendation based on a low level evidence 1C).

Q.4:
In patients presenting with complications related to IBD, what is the appropriate medical treatment and nutritional support?

a) The role of medical treatment and management of specific IBD drugs

Statement 4.1
The optimal management of IBD patients presenting with acute abdominal pain is multidisciplinary, involving a gastroenterologist and an acute care surgeon (QoE C).
Statement 4.2
All IBD patients presenting with an acute abdomen should receive adequate volume of intravenous fluids, low-molecular-weight heparin for thromboprophylaxis and electrolyte abnormalities and anaemia should be corrected (QoE C).
Statement 4.3
Antibiotics should not be routinely administered, but only if superinfection is considered and in the presence of an intra-abdominal abscess (QoE B).
Statement 4.4
In case of superinfection or abscesses, prompt antimicrobial therapy against Gr/ / aerobic and facultative bacilli and Gr/+/streptococci and obligate anaerobic bacilli is needed according to the epidemiology and resistance of the setting. Antimicrobial therapy duration depends on the patient's clinical feature and laboratory tests results such as serum CRP level. (QoE A)
Statement 4.5
The initial medical treatment for severe active UC is intravenous corticosteroids, in case of hemodynamic stability of the patient (QoE A).
Statement 4.6
The response to intravenous steroids should be best assessed by the third day (QoE C).
Statement 4.7
In non-responder hemodynamically stable patients, medical rescue therapy including infliximab in combination with a thiopurine, or ciclosporin should be considered in a multidisciplinary approach (QoE B).
Statement 4.8
Infliximab should be considered if anti-inflammatory therapy for penetrating ileocecal Crohn's disease is required, following adequate resolution of intra-abdominal abscesses in a multidisciplinary approach (QoE C).
Statement 4.9
Preoperative treatments with immunomodulators associated with anti-TNF- agents and steroids are risk factors for intra-abdominal sepsis in patients requiring emergency resectional surgery (QoE B)
Statement 4.10
In complex perianal fistulizing disease infliximab or adalimumab can be used as first line therapy in combination with azathioprine following adequate surgical drainage if indicated. A combination of ciprofloxacin and anti-TNF improves short term outcomes (QoE A).

b) The role of nutritional support

Statement 4.11
Preoperative nutritional support is mandatory in severely undernourished patients (QoE A)
Statement 4.12
Total Parenteral nutrition should be reserved for nutritionally deficient IBD patients unable to tolerate enteral nutrition and when the enteral route is contraindicated, in critically ill patients presenting with signs of shock, intestinal ischemia, high output fistula, and/or severe intestinal haemorrhage (QoE B)
Statement 4.13
Total parenteral nutrition is the mode of choice when emergency surgery is needed for complicated IBD (QoE A)

Recommendations 4
We recommend evaluating medical treatment in IBD patients presenting with acute abdominal pain and disease activity in a multidisciplinary approach (Strong recommendation based on low level evidence 1C).
We recommend not routinely administrating antibiotics in IBD patients but only in the presence of superinfection, intra-abdominal abscesses, and sepsis (Strong recommendation based on high level evidence1A)
We recommend administering antibiotics according to the epidemiology and resistance of the setting in a duration that depends on the patient's clinical and biolchemical findings. Antifungals should be reserved for high risk patients such as those with bowel perforation and recent steroid treatment. (Strong recommendation based on high level evidence 1A)
We recommend administering as soon as possible venous thromboembolism prophylaxis with LMWH for the high risk of thrombotic events related to complicated IBD and the emergency setting (Strong recommendation based on high level evidence 1A)
We recommend weaning off steroids (wean preoperatively, ideally 4 weeks) and stopping immunomodulators associated with anti-TNF- agents before surgery, as soon as possible to decrease the risk of postoperative complications, in accordance with a gastroenterologist (Strong recommendation based on moderate level evidence 1B)

Table 3 Summary of statements and recommendations (Continued)

We recommend administering nutritional support (parenteral or enteral, according to GI function and in conjunction with a dietician/nutrition team) in IBD patients as soon as possible (Strong recommendation based on moderate level evidence 1B)

Non Operative vs Operative management

Q.5: What are the indications for emergency surgery in patients presenting with complications related to IBD?

Urgent surgical treatment is to be considered in the following clinical setting:

1) ACUTE SEVERE ULCERATIVE COLITIS

Statement 5.1.1
If a patient's condition does not improve or deteriorates within 48 to 72 h from initiation of medical therapy, in acute severe ulcerative colitis second-line therapy or surgery should be considered and discussed by the emergency surgeon and the gastroenterologist (QoE C)
Statement 5.1.2
In the event of surgical complications such as free perforation, life-threatening haemorrhage (unstable patients) or generalised peritonitis, immediate surgery is recommended in acute severe ulcerative colitis (QoE B)
Statement 5.1.3
In case of no improvement with second line therapy, in discussion with the gastroenterologist, surgery is recommended in acute severe ulcerative colitis (QoE C)
Statement 5.1.4
Subtotal colectomy with ileostomy is a safe and effective treatment for patients requiring emergency surgery for acute severe ulcerative colitis presenting with massive colorectal haemorrhage (QoE B)

Recommendations 5.1
We suggest evaluating all hemodynamically stable patients presenting with acute severe ulcerative colitis in a multidisciplinary approach with the gastroenterologist to decide on options for initial medical treatment (Weak recommendation based on low level evidence 2C)
We recommend performing emergency surgical exploration in hemodynamically unstable patients, according to damage control principles and in patients presenting with colonic perforation. Subtotal colectomy with ileostomy is the surgical treatment of choice in patients acute severe ulcerative colitis patients presenting massive colorectal haemorrhage or non responders to medical treatment (Strong recommendation based on high level evidence 1A)

2) TOXIC MEGACOLON

Statement 5.2.1
In patients presenting with toxic megacolon complicated by perforation, massive bleeding (unstable patients), clinical deterioration and signs of shock, surgery is mandatory (QoE A).
Statement 5.2.2
In patients presenting with toxic megacolon, showing no clinical improvement and biological signs of deterioration after 24–48 h of medical treatment, surgery is mandatory (QoE B).
Recommendation 5.2
We recommend not delaying surgery in critically ill patients presenting with toxic megacolon (Strong recommendation based on low level evidence 1C)

3) UNCONTROLLED GASTROINTESTINAL BLEEDING

Statement 5.3.1
Pre-operative localisation of the bleeding site, with the aim of excluding an upper gastrointestinal or an anorectal bleeding may allow better planning the surgical strategy (QoE C).
Statement 5.3.2
An upper and lower GI endoscopy should be the initial diagnostic procedure for nearly all stable patients presenting with acute gastro-intestinal bleeding (QoE C).
Statement 5.3.3
Computed tomography angiography should be performed in patients with ongoing bleeding who are hemodynamically stable after resuscitation (QoE C).
Statement 5.3.4
Surgical treatment is recommended in patients with life-threatening bleeding and persistent hemodynamic instability and in patients with acute severe ulcerative colitis non-responders to medical treatment presenting with a massive colorectal haemorrhage (QoE B).
Statement 5.3.5
Significant recurrent gastrointestinal bleeding could be an indication for urgent surgery (QoE C).

Recommendations 5.3
We recommend performing immediate surgery in unstable patients presenting with hemorrhagic shock, and non responders to resuscitation. An intra-operative ileoscopy, if available, could be useful in localising the bleeding source in patients with Crohn's disease. In patients presenting with acute severe ulcerative colitis and refractory haemorrhage, non responders to medical treatment, the surgical treatment of choice is a subtotal colectomy with ileostomy, if skills are present (Strong recommendation based on low level evidence 1C).
We suggest evaluating hemodynamically stable IBD patients presenting with a gastrointestinal bleeding at first with a sigmoidoscopy and an esophagogastroduodenoscopy (Weak recommendation based on low level evidence 2C)

4) FREE PERFORATION

Recommendation 5.4
We recommend performing surgical exploration in the presence of radiological signs of pneumoperitoneum and free fluid within the peritoneal cavity in acutely unwell patients presenting with complicated Crohn's disease or acute severe ulcerative colitis (Strong recommendation based on low level evidence 1C)

Table 3 Summary of statements and recommendations (Continued)

5) INTESTINAL OBSTRUCTION

Statement 5.5.1
Surgery is mandatory for symptomatic intestinal strictures that do not respond to medical therapy and are not amenable to endoscopic dilatation in Crohn's disease (QoE C).
Statement 5.5.2
Any colorectal stricture should be assessed with endoscopic biopsies to ensure the absence of malignancy (QoE C).

Recommendation 5.5
We recommend performing surgery in patients presenting with small bowel obstruction because of fibrotic or medically-resistant stenosis (Strong recommendation based on low level evidence 1C)

Surgical management

Q.6:
Which surgical approach is recommended for complicated IBD in the emergency setting?

1) Emergency Surgery for ulcerative colitis

Statement 6.1.1
In the setting of free perforation and generalised peritonitis or toxic megacolon, in hemodynamically unstable patient, an open approach is recommended (QoE C).
Statement 6.1.2
Both open and laparoscopic approaches are otherwise appropriate in the emergency setting, according to patient's haemodynamic stability and signs of sepsis in complicated ulcerative colitis (QoE C).
Statement 6.1.3
A laparoscopic approach (multi-port or in a single incision), if local expertise allows, may reduce length of stay and morbidity in hemodynamically stable patients with complicated ulcerative colitis (QoE C)

2) Emergency Surgery for Crohn's Disease

Clinical scenarios:

a) Intestinal obstruction

Statement 6.2.1
If emergency surgery is indicated, a laparoscopic approach to adhesiolysis and bowel resection is recommended if appropriate expertise exists, with care taken to avoid iatrogenic bowel injury in patients presenting intestinal obstruction in Crohn's disease (QoE C)

b) Bleeding

Statement 6.2.2
If the patient presenting with gastrointestinal bleeding in Crohn's disease is haemodynamically stable and endoscopic and/or interventional radiology measures have been unsuccessful, then a surgical exploration in a laparoscopic (multi-port or in single incision) approach is recommended. (QoE C)
Statement 6.2.3
If the patient presenting with gastrointestinal bleeding in Crohn's disease is haemodynamically unstable and endoscopic and/or interventional radiology procedures have been unsuccessful, then a surgical exploration in an open approach is recommended to reduce operating time (QoE C).

c) Free perforation and purulent/faecal peritonitis

Statement 6.2.4
A laparoscopic approach with resection, lavage and stoma is suggested in hemodynamically stable patients presenting with perforation and peritonitis in Crohn's disease, to avoid complications associated with anastomotic leak (QoE C)
Statement 6.2.5
If there is haemodynamic stability and only localised contamination, an anastomosis may be considered but other factors will also need to be considered (QoE C)
Statement 6.2.6
If evidence of severe sepsis/septic shock, damage control surgery may be considered, with resection, stapled off bowel ends and temporary closure (laparostomy) with return to theatre in 24–48 h for a second look, washout and consideration of stoma vs anastomosis (QoE C).

d) Crohn's Colitis

Statement 6.2.7
Subtotal colectomy and ileostomy is the emergency operation of choice for severe acute and refractory colitis, with open and laparoscopic approaches appropriate in the emergency setting, according to hemodynamic patient's stability (QoE C).
Statement 6.2.8
A laparoscopic approach, if local expertise allows, may reduce length of hospital stay and risk of infectious complications (QoE C).
Statement 6.2.9
There is insufficient evidence to recommend SILS or robotic surgery in the emergency setting (QoE C).

3) Anastomotic considerations in emergency surgery for Crohn's Disease

Statement 6.3.1
If a patient in the emergency setting has 2 or more risk factors for anastomotic complications, then a stoma should be formed following resection. (QoE C)

Table 3 Summary of statements and recommendations (Continued)

Statement 6.3.2
If a decision to anastomose has been made, there is no evidence to suggest that one type of anastomosis (stapled vs hand sewn) is superior to the other in terms of complication rates or recurrence, and the decision can be left to surgeon preference (QoE C).

Recommendations 6
We recommend performing a surgical exploration by laparotomy in a hemodynamically unstable patient presenting with complications related to IBD such as perforation and severe peritonitis, massive intestinal bleeding, obstruction, toxic megacolon, severe colitis non responder to medical treatment, taking in to consideration damage control surgery principles with or without an open abdomen (Strong recommendation based on low level evidence 1C).
We recommend performing a laparoscopic approach in hemodynamically stable patients presenting with complications related to IBD, when skills are available, in order to decrease morbidity and length of hospital stay (Strong recommendation based on low level evidence 1C).
We recommend performing a subtotal colectomy with ileostomy in patients presenting with acute severe refractory colitis, and massive colorectal bleeding non responders to medical treatment, in a laparoscopic or open approach according to patient's hemodynamic stability and surgeon's skill (Strong recommendation based on low level evidence 1C).
We suggest considering an (stapled or hand sewn) anastomosis in hemodynamically stable patients with Crohn's disease who have good pre-existing nutritional status and who are taking no steroids or other immunosuppression and presenting with no bowel vascular compromise and only localised peritonitis. A defunctioning stoma should also be considered in the emergency setting. (Weak recommendation based on low level evidence 2C)

Q.7:
How to manage perianal sepsis in the emergency setting?

Statement 7.1
An acute abscess should be adequately drained under general anaesthetic, with no routine requirement for wound packing. (QoE C)
Statement 7.2
No active attempt should be made to find an associated anal fistula at the initial abscess presentation. (QoE C)
Statement 7.3
If an obvious fistula exists (without probing), the fistula should not be laid open and a loose draining seton should be inserted (QoE C)
Statement 7.4
There is no role for any additional surgical fistula treatment modality in the emergency treatment of Crohn's perianal sepsis. (QoE C)
Statement 7.5
An assessment of the rectum should be made at the time of abscess drainage, to assess for signs of proctitis. (QoE C)

Recommendation 7
We recommend performing adequate surgical drainage of perianal abscess in Crohn's disease without searching for an associated fistula (Strong recommendation based on low level evidence 1C)

CRP does not rule out CD disease activity; therefore, the results should be interpreted with caution given the low sensitivity of this test.

The sensitivity of CRP ranges from 70 to 100% in the differential diagnosis between CD versus irritable bowel syndrome and ranges from 50 to 60% in UC [15]. Levels of CRP are higher in active CD than in UC [16].

ESR determination monitors satisfactorily the acute-phase response of IBD after the first 24 h. In contrast, during the first 24 h, the CRP is a better indicator of the acute phase. The ESR, compared with CRP, reaches the highest point less quickly, and it decreases more slowly and has a lesser degree of change [17].

Previous studies assessing the best monitoring of medical treatment measured prospectively some laboratory parameters such as full blood count, CRP, ESR, alfa1 antitrypsin, and orosomucoid in CD patients every 6 weeks after recent weaning of steroids [17] and showed that the best predictor of short-term relapse is the combination of CRP and ESR. Patients with CRP > 20 mg/L and ESR > 15 mm had an eight-fold increased risk of relapse with a negative predictive value of 97%, suggesting that normal CRP and ESR could almost exclude relapse in the next 6 weeks.

Anti-inflammatory or immunosuppressive drugs do not affect CRP production. Therefore, changes of CRP

Table 4 Classification of ulcerative colitis per Truelove and Witts criteria at admission

Variables	Mild	Moderate	Severe
Stool frequency/day	4 per day	4–6 per day	6 per day
Blood in stool	None or small	-	Present
Temperature	Apyrexial	Intermediate	>37.8
Heart rate bpm	<90min/min	Intermediate	>90/min
Anemia (Hb=g/dL)	>11	10.5–11	<10.5
Erythrocite sedimentation rate (mm/hour)	<20	20–30	>30mm/h